THE CITY OF ROCKFORD ILLINOIS, USA

2014

Rockford Water Utility Annual Report

5/11/2015

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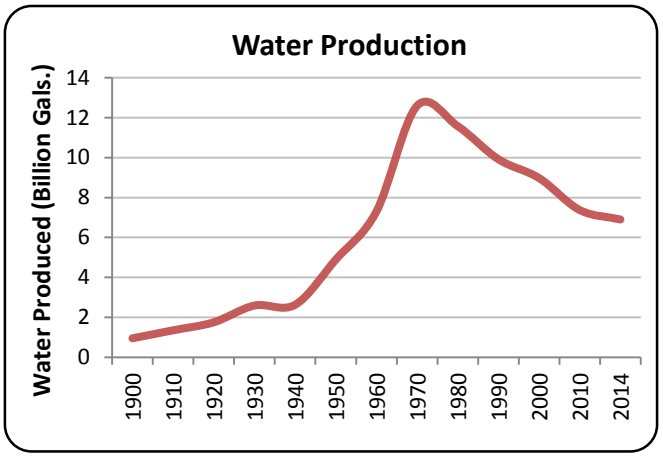
Year in Review

Operations and Maintenance

Production

The Rockford Water Utility operated 26 water production facilities and produced 6.9 billion gallons of water in 2014. Water production has generally declined since 1973 (see graph). The 2014 production level is about the same as it was in 1958. Half of the water produced was filtered to remove naturally-occurring iron and radium. Filtration is required to meet Federal and State drinking water quality standards. All our community needs for drinking water, irrigation, and fire protection were met in 2014.

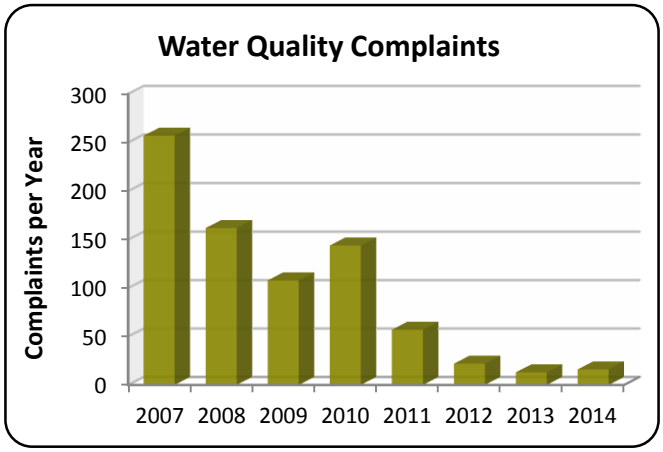


Major maintenance projects in 2014 included replacing pumping equipment and reconditioning the water supply wells at Well 42 (6733 Newburg Road) and Well 34 (3925 Dawes Road). In addition, an assessment of the condition of the City's major reservoirs was completed in 2014. Based on that assessment, relining the 5-million gallon reservoir at Well 31 was initiated in December 2014.

The Production Section continued its initiative to improve the efficiency and effectiveness of its operations in 2014. Adjustments made as part of this initiative resulted in improved flexibility and increased productivity. The computerized Asset Management / Work Order System is now fully implemented with operators using tablets in the field to document maintenance activities.

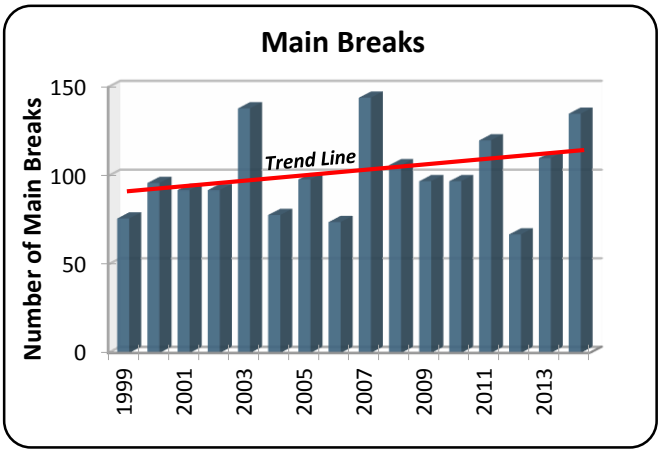
Water Quality

City of Rockford water customers continued to receive clean and clear drinking water in 2014. The utility received less than 16 complaints for the entire year (see graph). That is the equivalent of one complaint for every 3400 customers per year. Based on the American Water Works Association (AWWA) 2013 Benchmarking Survey this puts Rockford in the upper 10% of water systems in America.



Distribution

The trend of increasing water main breaks continued in 2014 with 135 (see graph). Currently, the number of main breaks is increasing by about 2 per year. The primary reason for this increase is the age of the water main; as water main gets older it is more likely to fail. Most American Cities face this same issue. According to the 2014 Strategic Directions survey by Black & Veatch, water utility managers across America identified aging water infrastructure as the number one issue confronting their utilities.



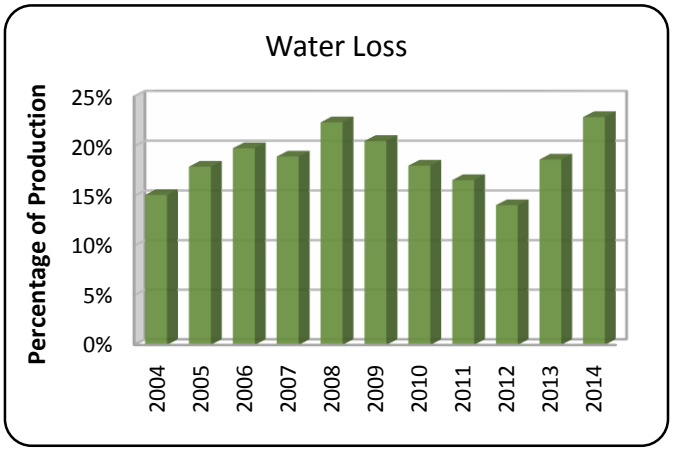
Extremely cold temperatures in 2014 resulted in 242 frozen water services. Contractors working for the City thawed or replaced these services, restoring water service within a couple of days for most customers. Using contractors allowed City crews to focus on the 68 water main breaks that occurred during the first two months of the year. Normally, there are about 25 main breaks during that period.

The high number of water main breaks and service repairs during the winter produced a domino-effect on operations. Because there were so many repairs, roadway and lawn restorations took more resources than normal. That left fewer resources to perform service line repairs, resulting in a large backlog of work. The Distribution Section eventually caught up with the work in August. However, it required diverting resources from fireflow testing and hydrant maintenance. The Fire Department completed the fireflow testing program for 2014.

Flushing water mains to improve water quality remained a priority throughout the year. Crews were able to flush 430 miles of water main (about half of the total). Valve exercising and leak detection were conducted on a limited basis in 2014 and no new water mains were constructed by Water Division crews as personnel were redirected to perform service line repairs.

Water Loss

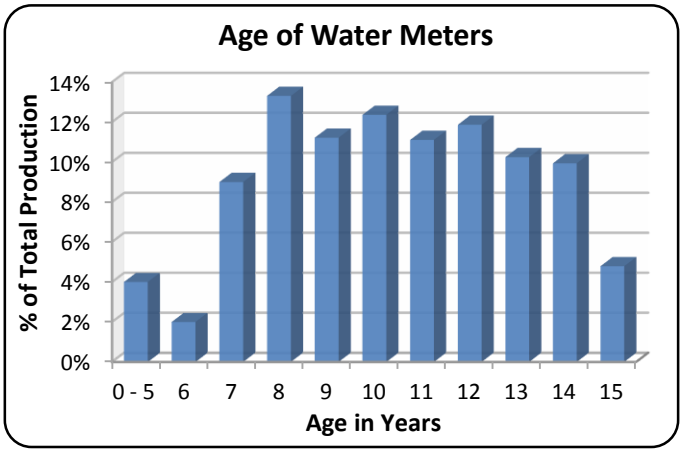
All water systems lose water due to leakage; systems with older water mains, like Rockford, tend to lose more water. In 2014, Rockford lost approximately 23% of water production due to leakage (see graph). The Illinois Environmental Protection Agency (IEPA) has set Rockford's target for water loss at 15%. Water loss is a concern because the cost of producing, treating and pumping the water that is lost to leakage is never recovered.



Water loss can be reduced with a leak detection program. The cost of such a program often pays for itself by reducing the amount of water leakage in the system. In 2014, the scheduled leak detection program was not conducted as Water Distribution Section resources were redirected to perform water main and service line repairs.

Field Services

Personnel from the Field Services Section completed over 41,000 service orders in 2014. The majority of these service orders (25,600) were related to delinquent accounts. Water was turned-off for non-payment 3,520 times in 2014; down by about 50% from historical levels. This reduction in the number of turn-offs is primarily due to the practice of hanging a 5-day notice on the customer's door before the water is turned off.



The number of water meter failures continues to rise as Rockford's water meters get older. In 2014, about 500 meters failed. The expected life of a meter is 15 to 20 years. The last meter change out program was from 1999 to 2007, so the oldest meters are now 15 years old (see graph). Older meters tend to register less water than is actually being used, resulting in lost revenue. The cost of replacing old meters is often offset by the increased revenue from more accurate meters. A meter change out program should be initiated within three years.

Customer Service

The City's Customer Service Center (CSC), which is manned by Finance Department personnel, answered approximately 79,300 calls for service in 2014; up by 3.4% from 2013. Approximately 87% of the calls were water-related. Based on seven full-time equivalent Customer Service Representatives (CSRs), each CSR takes about 50 calls per day, which is average for call centers. The CSC performance in Average Talk Time (2.3 minutes) and Average Wait Time (0.8 minutes) were both in the upper 25% of AWWA's 2013 Benchmarking Survey. The Abandoned Call Ratio (10.2%) was just below the average.

Personnel, Safety and Training

In 2014, the Water Division had 62 full-time employees. Another 28 full-time equivalents support the Water Utility but are assigned to other Divisions; primarily Customer Service Center and Engineering. The Water Division is actively involved in the Public Works Department Worker-Safety Program. This program focuses on applying OSHA safety practices and regulations to all Public Works operations. The goal of the program is to reduce on-the-job accidents and injuries. In 2014, Water Division personnel were involved in 9 accidents (4 were no-fault) and suffered 11 minor injuries. Only one injury required medical follow-up; it resulted in 6 days of restricted duty.

The technologies and practices employed in the water utility industry are constantly changing. Our training programs focus on keeping our employees well trained on current practices and aware of emerging technologies. The Water Division uses a portion of its 1111 Cedar Street Building to host training events throughout the year. In 2014, there were 20 training events held at the WATER Training Academy. Overall, Water Division employees received 550 hours of training, which is about 9 hours per employee. The average training hours per employee reported by AWWA is 20.

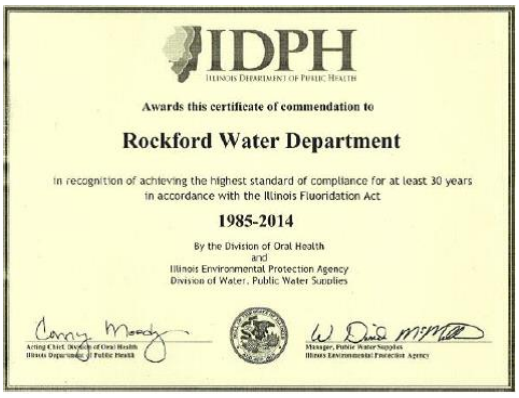
Community Outreach and Other Activities

Water Division personnel were involved in several promotional and educational activities throughout 2014 including: the Youth Groundwater Festival held at Rock Valley College, Kennedy Middle School Career on Wheels, and the Career Expo held at the BMO Harris Bank Center. Water Division staff also began serving as advisors to the HPS (Human & Public Service) Academy at Jefferson High School in 2014.

Water Division personnel are active in the professional association for water utilities, the American Water Works Association (AWWA). Water Division personnel hold offices in the Illinois Section including: Trustee of District 1, Young Professional Chair, and Editor of Splash – the quarterly publication of the Illinois Section. We also are active in the Northern Region of the Illinois Groundwater Protection Planning Committee.

Rockford drinking water was recognized for its good taste in 2014. A sample from the water system won first place in the AWWA District 1 Water Taste Contest (see graphic).

The Water Division web site (http://rockfordil.gov/public-works/water-division.aspx) continues to serve Water Utility customers with relevant information. The feature "This Week in Water" chronicles events in the Water Division. The Rockford Water Division's Consumer Confidence Report (CCR) is also located on the City's website. The CCR contains information required by Illinois EPA concerning the quality of our drinking water.

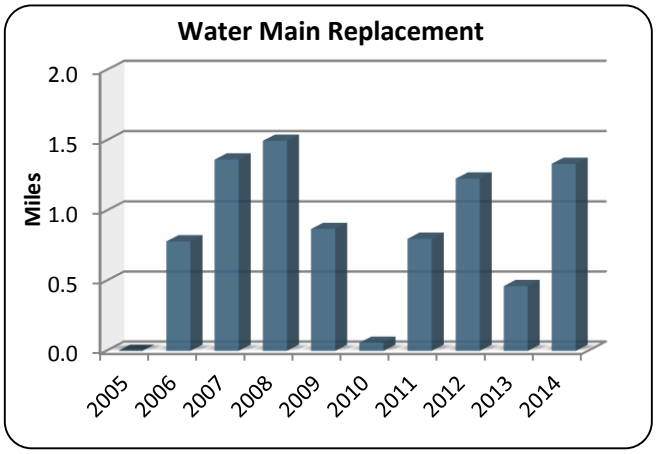


The Water Division also earned the Illinois Department of Public Health's Fluoridation Award in 2014 (see graphic); giving the Division 30 years of perfect compliance with the Illinois Public Water Supply Regulation Act.

Capital projects

Illinois Environmental Protection Agency (EPA)-mandated upgrades to five water production facilities comprised the largest capital project in 2014. The project included separating chlorine rooms at Wells 23 (1206 Elmwood Road), 25 (5602 Spring Creek Road), 26 (5516 E. State Street), 34 (3945 Dawes Road) and 39 (7423 Spring Brook Road). The project also included replacing antiquated motor control centers and other equipment to improve worker safety and reliability.

An innovative water treatment process to remove low concentrations of volatile organic compounds (VOCs) was implemented at Well 6 (2604 19th Avenue) saving the City several thousands of dollars in treatment costs.



Approximately 1.3 miles of water main were replaced in 2014; bringing the total replaced during the last 10 years to 8.4 miles (see graph). Water main construction projects in 2014 included replacing a large portion (approximately 3,000 feet) of water main along South Main Street. This project should be completed in 2015. In addition, water main replacement projects were completed along Railroad Avenue, Avon Street, Wallin Avenue, Kennon Street, and Burton Street. Approximately 1.2 miles of new water main was acquired through development agreements, including 4,250 feet at the new Meijer store.

Financial Performance

Analysis of Financial Statements

Water sales have been on a steady decline over the last 40 years. Despite annual 3% rate increases, revenue has not kept up due to lower than expected water sales. In 2013, sales were down by 3.8% and in 2014 sales were generally flat (see table).

SUMMARY FINANCIAL STATEMENT (in $ Millions)

INCOME STATEMENT	12/31/12	12/31/13	12/31/14
Operating Revenues	$24.7	$23.4	$23.7
Operating Expenses	$19.1	$20.0	$22.3
Total Operating Income	$5.6	$3.4	$1.5
Non-Operating Rev. (Exp.)	($2.1)	($2.1)	($0.4)
Total Net Income	$3.5	$1.4	$1.1
STATEMENT OF CASH FLOWS			
Cash Flows - Operations	$11.2	$9.3	$7.3
Cash Flows - Capital Financing	($12.0)	($11.6)	($11.9)
Cash Flows - Investing	$0.3	($0.7)	$0.9
Net Increase (Decrease) in Cash	($0.4)	($3.0)	($3.7)
Beginning Balance - Cash	$23.4	$23.0	$20.0
Ending Balance - Cash	$23.0	$20.0	$16.3
Reserve Requirements	($7.6)	($7.4)	($7.3)
Net Cash Less Reserves	$15.4	$12.5	$8.9

The Water Division has done a good job of keeping operating expenses under control. Operating expenses (less depreciation) have risen by an average of 1.9% for the five years before 2014. In 2014 they went up by almost 12% ($2.3 million), almost entirely due to the cost of repairing frozen services and several major main breaks.

Operating income has dropped off significantly the last two years for a variety of reasons:

1) Reduction in water sales,

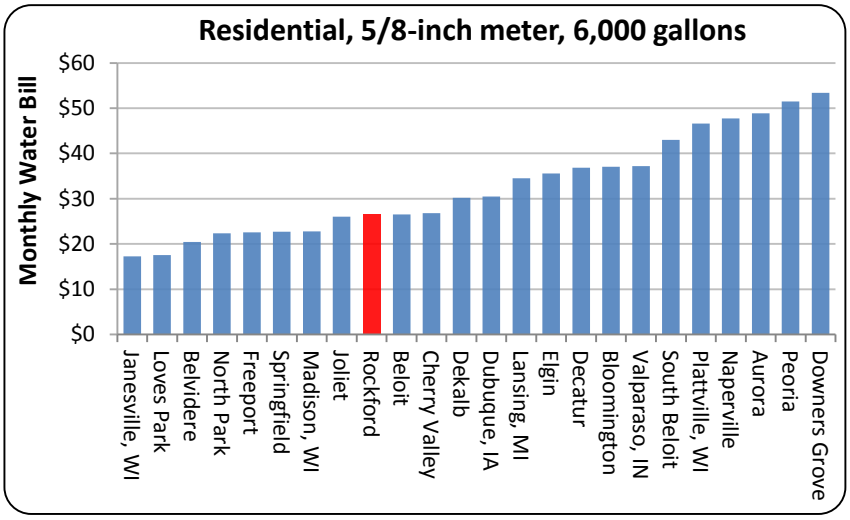
2) Increase in water loss, and

3) Large increase in operating expenses due to frozen services and an increase in main breaks.

This drop in operating income reduces the amount of cash available to fund capital projects and meet reserve requirements. At the same time, the demand for new capital investment has never been higher. The City has been working with IDOT on several major arterial reconstruction projects that all required Water participation. As a result, in 2014 and again in 2015 we will be spending significantly more than planned for infrastructure improvements at the same time that our resources are lower than planned.

Water Rates

Rockford's 2014 water rates were 3% higher than 2013. The City's water rates remain below average compared to surrounding communities and comparable communities in the region (see graph). In 2014, a residential water customer with a 5/8-inch meter using 6,000 gallons per month paid $26.52 per month.



Water rates are planned to increase by 3% per year for the near future. This rate is lower than the water & sewer utility consumer price index (5.1%) published by the Institute of Public Utilities. It is also less than the annual water rate increase (6.0%) reported by the AWWA in its 2013 Water Rate Study of U.S. water utilities. The water affordability index (average annual water bill/real median household income) in Rockford is 0.62%; that is better (lower) than over 75% of water utilities in America according to the 2013 AWWA Benchmarking Report.

A Cost of Service Study was completed in 2014. This study identified several issues with Rockford's water rates that should be addressed, including:

- Increase the fixed portion and decrease the variable portion of the average water bill. This will improve revenue stability by making revenue less dependent on water usage.
- Current rates undercharge for larger meters (non-residential). Greater equity between residential and non-residential will be attained by increasing non-residential water rates.
- Current discounts for using more water discourage water conservation.
- Fire protection through public hydrants is charged to customers. Private fire protection systems that use City water are not being adequately charged.

Future Challenges

Operational

Service Delivery

The number of service leaks and main breaks continues to rise as the water system ages (see picture). Service leaks in 2013 and 2014 were 721 and 723, respectively. This is up 30% from 2010 levels (555). Main breaks have increase by 22% over the last 15 years; from an average of 90 to 110 per year. During this time, staffing levels have remained the same. The increase in emergency repairs (service leaks and main breaks) have required management to divert resources away from preventative maintenance programs such as valve exercising, leak locating, hydrant maintenance and fireflow testing. The effects of reduced preventative maintenance programs are apparent; particularly with respect to the increases in water loss over the last three years.

The Field Services Section is unable to keep up with the number of service orders created by the Customer Service Center. More repairs to the system are needed than ever before. At current staffing levels, managers use overtime to complete all the service order requests. In addition, meter change outs and meter testing is not being done because the resources don't exist to accomplish these tasks.

Given that more work will be required to maintain the water system as it ages, alternative methods of service delivery are required. The Rockford Water Utility has been successful in improving water quality and reinventing its service delivery methods in the Water Production Section. The challenge now is to expand that success to the Water Distribution and Field Services Sections.

New Regulations

As a regulated utility, the Rockford Water Utility must comply with Federal and State Laws and Regulations. New regulations are routinely enacted by the EPA and other agencies. These new regulations often have significant financial impacts on the Water Utility. Currently, Chromium VI, which is a known carcinogen, is being considered by the EPA for regulation. Chromium is currently monitored in Public Water Systems as Total Chromium. Rockford's water is in compliance with the Maximum Contaminant Level for Total Chromium. However, new analytical techniques can now detect very small quantities of Chromium VI. These more restrictive regulations may require treatment in the future.

Illinois EPA is working on rules and accompanying legislation that will mandate the development of a Ground Water Protection Plan for all water utilities in Illinois. The purpose of these plans is to prevent contamination of the ground water that communities depend on for their drinking water. Given the history of costs incurred by the City due to ground water contamination, such a program is needed in Rockford. The Rockford Water Utility will have to either hire additional staff or contract out a portion of the work required by the rules.

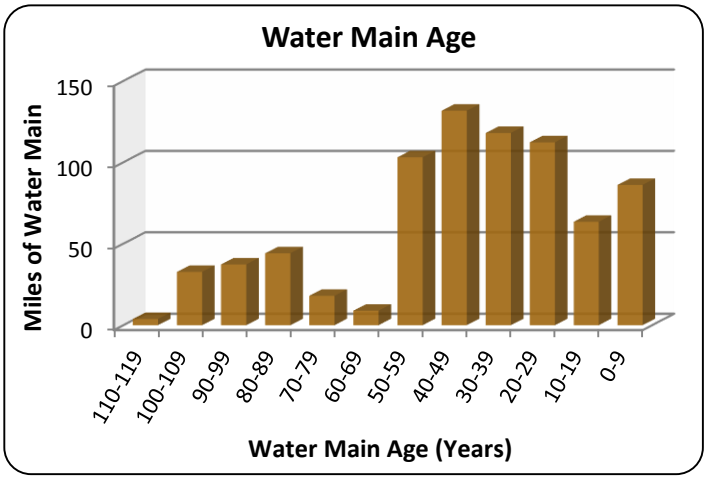
Water Treatment Residuals Management

The filtration process to remove radium from drinking water produces residuals that have a high concentration of radium. The residuals, which are considered low-level radioactive waste, accumulate in the backwash holding tanks over time. Radium filtration sites are monitored regularly. Currently, there is no health risk associated with the residuals. However, the residuals should be removed. This will require the services of a specialty contractor.

Capital

Aging Infrastructure – Water Mains

The Water Division maintains 850 miles of water main. On average, water mains have a life expectancy of 70 to 100 years. Approximately 20% of the City's water mains are older than 70 years (see graph).



A comprehensive analysis to identify water main with the highest risk / consequence of failure has been completed. This analysis identified 13 miles of water main that is high risk and should be replaced within the next 5 years. It identified another 34 miles of medium risk water main that should be replaced in 5 to 10 years.

Over the last five years an average of 0.8 miles per year of water main has been replaced. At this rate it will take over 200 years to replace just the water main that is currently over 70 years old (170 miles). This replacement rate is not sustainable. The replacement rate must be increased significantly to ensure the viability of the Water Utility for future generations.

Aging Infrastructure – Wells and Storage

The original wells at the Stanley Street Pumping Station are nearly 100 years old and need to be removed from service. A replacement well is currently in operation; however, it has high concentrations of radium. When the old wells are removed and the new well becomes the sole source of water for the pumping station radium treatment will be required.

In addition, the reservoir at the Stanley Street Pumping Station has significant structural issues and needs repair. The repairs are estimated at $2 million, while a replacement reservoir is estimated at $3 million. The ground storage tank at Well 13 is also in need of repair due to water leakage. This repair will include lining the reservoir similar to what was done at Well 31 and is estimated to be $800,000.

2015-2019 Implementation Plan

In 2014, the City of Rockford developed a five-year Implementation Plan to update the strategies identified in the City's 2020 Comprehensive Plan. The Implementation Plan includes three strategic objectives and recommended initiatives that pertain directly to the Water Utility (see table below).

Strategic Objectives & Initiatives:	
8.1 Protect the groundwater supply and enhance drinking water quality.	a. Implement Source Water Protection Program (SWPP). b. Optimize existing and add new water treatment facilities as needed to meet drinking water regulations. c. Conduct annual water main flushing program. d. Provide a program to inspect industrial and commercial properties to reduce illicit discharges into the ground and streams.
8.2 Maintain and enhance infrastructure that delivers water to the City.	a. Conduct performance tests and perform maintenance as needed. b. Repair water main infrastructure as needed. c. Implement city-wide valve exercising program. d. Perform fire-hydrant testing (10-year rotation).
8.3 Identify and upgrade aging water main infrastructure.	a. Assign risk score to all water mains based on condition and consequence failure. b. Develop water main renewal forecast along with estimated annual costs. c. Develop and implement water main replacement funding.

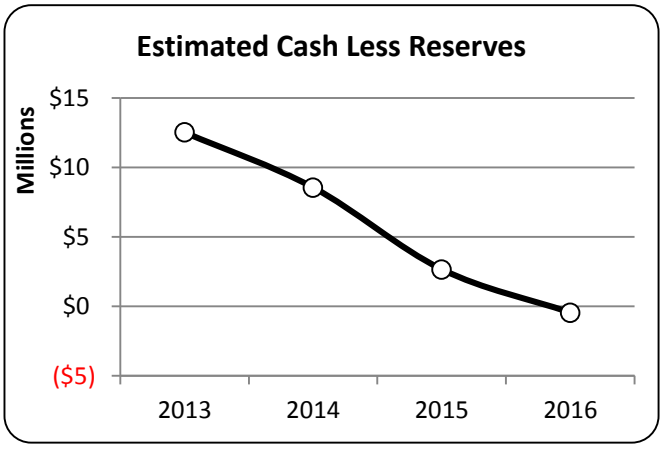
Financial

Short-Term (1 – 3 years)

Water sales are expected to decline or remain flat, primarily as a result of water conservation through increased use of high efficiency plumbing fixtures and appliances by water customers.

Operational expenses are expected to continue to increase; likely in the range of 1 - 2% per year.

Capital expenses are projected to be higher than budgeted. Several water main construction projects, which are associated with major road reconstruction projects, are not yet complete. The costs to complete these projects will drive capital expenditures above budgeted amounts for 2015 and 2016.



Given the current schedule of revenues and total expenses, Cash Less Reserves will be entirely depleted sometime during 2016 (see graph). If this happens, cash that has been set aside to meet the City's bond covenants will have to be used to fund operations. Breaking bond covenants will negatively impact the City's bond rating.

Long-Term (Beyond 3 years)

The Water System Rehabilitation Program (2008 – 2012) addressed the water quality and service pressure issues of the City's water system. Resolving these issues was deemed a priority because of their direct impact on water customers. Funding the improvements required taking on a substantial amount of long-term debt. The financial plan to pay off that debt included raising water rates and creating a reserve fund to cover future negative cash flows. The reserve fund is being depleted prematurely as a result of declining water sales and increasing operating and capital costs. The reserve fund must be replenished.

The City of Rockford, similar to other Midwest communities, will require an investment of 3 to 4 times greater than is currently being spent on infrastructure replacement. Our current Water Replacement and Infrastructure Improvement (WRIA) budget is $5M annually. Thus, annual spending on infrastructure replacement should be increased to $15M - $20M by 2030.

Water Rates

Rockford's current water rate structure is comprised of two components; a fixed monthly fee and a variable fee based on water usage. The variable fee generates about 65% of the total revenue. Thus, revenues are influenced strongly by water usage. The most dramatic effects of this are seen during drought or wetter than normal periods in the summer. Water rate structures that depend less on usage can reduce this kind of revenue instability.

Rockford's water rate structure is essentially the same as it was when the utility was established in 1875. Known as a declining block, this structure charges lower rates for higher usage. This water rate structure served Rockford well during its period of growth and industrialization, providing discounts to industrial customers that used large volumes of water. During that period, the expansion of the water system allowed the City to serve more customers, which in turn produced more revenue. Increasing revenues guaranteed there would be plenty of financial resources to pay for future expansions as the City grew.

For the last several years, Rockford's water customer base has been stable to slightly shrinking. More than 70% of the customer base is residential and there are few large industrial water users. Finding and developing new water supplies is not a priority. In fact, the number of wells has decreased by 25% over the last ten years. Furthermore, Rockford's water customers are more environmentally aware and concerned about the quality of their drinking water than ever before. Regulatory agencies are constantly adding unfunded mandates to improve water quality and service. As a result, the Water Utility can no longer depend on increasing sales to fund the improvements that are needed today. Rather, we must develop modern water rates that address issues of full-cost recovery, water conservation, affordability, and pricing equity.

Conclusions

- The drinking water produced and distributed by the Rockford Water Utility, along with the service provided to its customers, is excellent.
- There are preventative maintenance and equipment replacement programs that are not being adequately addressed. The number of these programs and their financial impacts will continue to grow in the future as the system ages.
- Declining water sales and increasing operating costs along with short-term capital project commitments have depleted the Water Utility's reserve fund. Operating without these reserves represents a substantial risk to the Water Utility and the City.
- The City recognizes the importance of replacing its aging water infrastructure and has adopted strategies and implementation initiatives for an infrastructure replacement program through its 2015-2019 Implementation Plan.
- The current annual capital budget of $5M along with scheduled increases of $250,000 per year is inadequate funding for a sustainable water infrastructure replacement program.
- Rockford water rates are below local, regional, and national averages. The cost of water service in Rockford is highly affordable.
- The Rockford water rate structure does not reflect current water utility industry best practices for pricing equity, water conservation, and revenue stability.

Recommendations

- Restore the Water Utility's reserves immediately.
- Evaluate and pursue alternatives for reducing operating costs including alternate service delivery methods and providers. Priority areas include, preventive maintenance, leak detection, water meter replacement, and energy consumption.
- Increase the Infrastructure Replacement Program by 3 to 4 times current levels in 15 years.
- Identify future revenue requirements to cover the Infrastructure Replacement Program.
- Develop new water rate structure that meets future revenue requirements (above) and promotes full-cost pricing, cost equity, revenue stability, and water conservation.